

Simplifying Harder Algebraic Indices

Write each of these in index form:

- (a) $\sqrt{4x}$ (b) $\sqrt[3]{27x}$
(c) $\sqrt{25x^3}$ (d) $\sqrt[3]{64x^2}$
(e) $(\sqrt[3]{8x})^2$ (f) $(\sqrt{16x^2})^3$

Write each of these in index form:

- (a) $\sqrt{\frac{9}{x}}$ (b) $\frac{1}{\sqrt[3]{125x}}$
(c) $\frac{1}{\sqrt{16x^3}}$ (d) $\left(\frac{2}{\sqrt{x}}\right)^3$
(e) $\left(\frac{6}{\sqrt[3]{x}}\right)^2$ (f) $\left(\frac{2}{\sqrt{9x^3}}\right)^4$

Write each of these in index form:

- (a) $(27x^2)^{2/3}$ (b) $(4x^6)^{3/2}$
(c) $(8x^9)^{-2/3}$ (d) $(49x^{2/3})^{-3/2}$
(e) $(125x^3y^{12})^{2/3}$
(f) $\left(\frac{16}{9x^4}\right)^{-3/2}$

Simplify each of the following:

- (a) $4y^{-3} \times \left(\frac{8}{y^9}\right)^{2/3}$
(b) $(\sqrt[3]{27y})^4 \times \frac{3}{y^2}$
(c) $\left(\frac{9x^2}{y^6}\right)^{-3/2} \times \left(\frac{y}{3x^2}\right)^4$
(d) $\left(\frac{2x^4 \times 4x^5}{9y \times \sqrt{9y}}\right)^{2/3}$
(e) $(\sqrt[3]{64x})^{-2} \div \left(\frac{27x^2}{8}\right)^{2/3}$

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